□□□□□□□□ -- □□□□□□□□□□□□

—— □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□□ Nature Magazine □□ AlphaGo Zero paper □□□□□□□□□□□□□□□□□□□□□□□□□□□ [1]□

□□□

□□□□

□□□

□□

□□□□□□□□□□□□□□□□ talent pool □□□

□□□□□□□□□□ talent pool □□

□□

□□

□□□□□□ Karl Raimund Popper □□

□□□·□□

□□□□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□ STEM □science, technology, engineering and mathematics□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□

□□

□□□□□□□□□□□□□□□□□□"□□□□□"□□□

□□ Deepmind □□□ [2]□□

AlphaGo Master □□□□□□□□□□□□□□□□□ AlphaGo Master□□□□□□□AlphaGo Master □□□

□□□□ AlphaGo Zero □□□□□□ AlphaGo Master □□□□□□□ AlphaGo Zero □□□□□□□□□□□□[3]□□□□□□□□□□□AlphaGo Master □□□□□□□□□□□□□□ 16 □□□□□□□□ AlphaGo Zero □□□□□□□□□□□□□□ 18 □□□□□□□□AlphaGo Zero □□□□ 14□16 □□□ 45 □□□□□□□□□□□□□□□□□□□

1□□□□□□□ Nature Magazime □□□□□□ AlphaGo □□□□□□□□Deepmind □□□□□□□□□□□□□□ AlphaGo Zero □ AlphaGo Master □□□□□□□□□□□□□□□□□□□□□□□

2) □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo Zero □□□□□□□□□□□□□□□□ local trap□□AlphaGo Zero □□□□□□□□□□□□ AlphaGo □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo □□□□□□□□□□□□□□□□□□□□□□

□□□□ AlphaGo Zero □□ [4]□□□□□□□□□□□ game □□□□□□□□□□□□□□□□□□□□□□□□□

Superhuman □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□Clock □□□□□□□□□□□□IBM S/360 □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo Zero □ superhuman□IBM S/360 □□□□ superhuman□□□□□□□□ AlphaGo Zero □□□□□□□□□□ Nature Magazine □□□□□ AlphaGo Zero paper □□□□□□□ superhuman □□□AlphaGo Zero □ □□□□□□□

□□ superhuman □□□□□□□□□□□□□□□□□□□□□□□ Technological Singularity □□□□□□□□□□□□□□□□□□□□□□□□□□□□ Demis Hassabis □□□□ AlphaGo □□□□□□□□□□□□□□□□□□

IBM S/360 □□□□□□□□□□□□□□ Alpha □□□□□□□□□□□□□□□□□□□□□□□□□□ IBM S/360□□ Deep Blue □□□□□ Deep Blue □□□□□□□□□□□□□ Alpha □□ [5]□

□□ AlphaGo □□ Deepmind team □□ AlphaGo □□□□□□□□□□□□□□□□□□□□□□ AlphaGo □□ AlphaGo □□□□□□□□□□□□□

□□ AlphaGo Zero □□□ AlphaGo Master□□□□□□□□□□□□ AlphaGo Master □□□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo Master□□□ AlphaGo Master □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ [6]□□□ Nature Magazine □□□ AlphaGo Zero paper □□□□□□□□□□□□□□ AlphaGo Master □□□□□□□□□□□□□□□□□□□□ deep-learning □□

□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo Zero□□□□□□□ AlphaGo Zero □□□ superhuman [7]□□□ superhuman□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ superhuman□□□□□□□□□□□ deep-learning□reinforcement□□□□□□□□□□□□□□□ superhuman □□□ □□□□□□□□□□□□

□□AlphaGo Zero □□ AlphaGo Master □□□□□□□ AlphaGo Master □□ superhuman□□□□□ AlphaGo Master □□□□□□□□□ 60 □□□□□□□ 3 □□□□□□□□ AlphaGo Master □ superhuman□□□□□ AlphaGo Master □□□□□□□□□□ AlphaGo Zero □ superhuman□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ superhuman [8]□

□ AlphaGo Zero □□ AlphaGo Master□□□□□□□ AlphaGo Master □□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo □□□□□□□ AlphaGo □□□□□□□□□□□□□□ □□□□□□□□

□□□□□ AlphaGo □□□□□□□□ Turing Machine □ deep-learning □□□□□□□□ AlphaGo □□□□□□□□□ □□Deepmind □□□□□□□□□□□□□□□□ AlphaGo Zero □ AlphaGo Master□□□□□□□□□□□□ AlphaGo Zero □ AlphaGo Zero □□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□

Deep-learning □□□ credit□□□□□□□□□□ reinforcement□□□□□□□□□□□□□□□□□□□□□□ credit□□□□□□□□□ reinforcement□□□□ local trap□□□

□□□□□□□□□□□□□ideas are cheap□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ idea □□ cheap □□□□□□□□□ reinforcement□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ [9]□

□□□□□□□□□□□□□□□□ leukotomy □□□□□□□□□□□□□□□□□□□□□ reinforcement□□□ peer review □ □□□□□□□□□□□□□□□□□□□□□□□□□□Socratic method □□□□□□□ peer review □□□□□□□□□□□□□□□□ □□□□□□□□□Socratic method □□□ peer review □□□□□□□□□□□□□□□□□□□□□□□

□□□ AlphaGo □□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ reinforcement□

□□□ □□ [10]□

□□□□□□□□□□□□□

□□□ □□□□□□□□□□□□□ [11]□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□Turing Machine □□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□ Turing Machine □□ local trap□□□□ Universal approximation □□□□□ □□

□□□□□□Socratic method □□ □□Superhuman □□□□□□□□□□□□□ Superhuman □□□□□□□□□□□

□□

　　□□□□□□□□□□ Alan Turing□□ Geoffrey Hinton□□ Demis Hassabis□□□□□□□□□□□□□□□□□□□□□□□□□□□□□AlphaGo □□

　　Demis Hassabis □□ AlphaGo □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ [12]□□□□□□□□□□□□□□□□□□□□□□□□ Geoffrey Hinton □□□□□□□□□□□□□□□□□□□□

　　Turing Machine □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ Turing Machine □□□□□□□□□□□ Geoffrey Hinton □□□□□□□□□□□□□□□□□ Turing Machine □□□□□□□□□□□□□ Alan Turing □□□□□□□□□□□□□□□□□□□□□□□□□□□□

　　□□□

　　□□□□□□□□□□□□□□□□□ Dialogue Concerning the Two Chief World Systems [13]□□□Socratic method □□□ [14]□

　　□□□□□□□□□□□□□□□ The Sceptical of Chemist□□

　　□□□□□□□□□□□□□□ On the Origin of Species□□□

　　□□□ [15]□

　　□□

　　□□□

　　□□□

□□Leukotomy □ BRIAN Initiative

Leukotomy □□□□□□□□□□□□□□□□

1□□□□□□□□□□□□□□□ personalities □ mental diseases□□□□□ personalities □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ BRAIN Initiative project □□□□□□

2□□□ leukotomy □□□□□□□□□□□□□□□□□□□□ Leukotomy □□□□□□□□□□□□□□□□□□□□□□□□□□□ BRAIN Initiative □□□□□□□□□ AlphaGo □□□□□□□□□□□□□□□□□□□□□□□□

3□□□□□□ personality □ intelligence □□□□□□□□□□□□□□□□ Walter Freeman □□□□□□□□□□□□□□□□□□□□ personality □ intelligence □□□□□□□□□□□□□□□□□□

BRAIN Initiative project NIH 的 BRAIN 2025 Report 中有 "there is general agreement that types can be defined provisionally by invariant and generally intrinsic properties" invariant 和 agreement insights "envision an integrated, systematic census of neuronal and glial cell types" dynamic brain mapping 上的 "Link brain activity to behavior"，"Produce conceptual foundations for understanding the biological basis of mental processes" mental processes 和 behavior

BRAIN Initiative project personality 和 intelligence brain mapping personality 和 intelligence hidden assumptions

 personality 和 intelligence

所以 BRAIN Initiative project brain mapping mental diseases，还有 personality 和 intelligence personality 和 intelligence leukotomy

 leukotomy AlphaGo

 personality 和 intelligence mental diseases

BRAIN Initiative 的 brain mapping human level intelligence personalities、intelligence 和 mental diseases BRAIN Initiative 和 neurosciences AlphaGo generic human intelligence AlphaGo neurosciences [16]。

 AlphaGo Master AlphaGo Zero AlphaGo Zero 和 AlphaGo AlphaGo Master AlphaGo

AlphaGo

 Technological Singularity BRAIN Initiative project Technological Singularity 是 baseless 的。

 AlphaGo Zero achieved superhuman performance Demis Hassabis 的 AlphaGo

~~~~~~~~~~~
[1]

[2] Cracking Go Deep Blue AlphaGo AlphaGo

[3] http://www.alphago-games.com/，AlphaGo Zero 和 AlphaGo Zero https://www.101weiqi.com/chessbook/player/38348/

[4]

Crazy Stone、AlphaGo AlphaGo

但是 AlphaGo

而且 AlphaGo Google AlphaGo（以及AlphaGo Zero，这是 AlphaGo Human level artificial intelligence AlphaGo

Google/Deepmind AlphaGo

[5] superhuman Alpha [6]。

 Deepmind 和 Alpha Nature Magazine 上发表的 Alpha

[6] AlphaGo AlphaGo AlphaGo Master 的 60+3

1976 1976

 AlphaGo

███

███ 1976 ██████████████████

████ AlphaGo Master █████████AlphaGo Master ██

[7] http://www.alphago-games.com/████Full Strength of Alphago Zero, i.e. Final Form██████ 40 Blocks█20 Blocks ██████ Not Full Strength of Alphago Zero█████████████████████ Alphago Zero ██████████████████████████████ Alphago Zero ███ superhuman██

[8] ███

[9] 2012 ██"Show, don't tell"██ show █████████ Socratic method ██████████████████ tell and discuss██████████████████████████████

Ideas are cheap ██

[10] ██████:"Go gaming is strictly defined within a very small space. Industrial automations are typically designed in well controlled environments, but not strictly defined. Car driving is regulated, but the environment is not well controlled"██

██

███

[11] ██

██ AlphaGo ████████████████████████

[12] ████████████████ AlphaGo Master███AlphaGo █████████████████████████ AlphaGo ███ AlphaGo ██████████

[13] Dialogue Concerning the Two Chief Word Systems ██████████████ Socratic Method

□□□
□□□ AlphaGo □□

□□

[14] □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo □□□ AlphaGo □□□

□□ AlphaGo □□□□□□ BRAIN Initiative project □□

□□

[15] Leukotomy □□□□□□□□□□BRAIN Initiative project □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□**BRIAN Initiative**□

[16] □□□ AlphaGo □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□